

n-Command[®] MSP



Network Management System



Product Features

- VoIP performance monitoring
- Configuration management
- Inventory management
- Voice quality data reporting including Mean Opinion Scoring (MOS)
- Customizable dashboard
- Automated device registration
- Automated Backups
- Firmware management
- Real time views of equipment configuration and performance
- Supports Total Access 900 series and NetVanta Series
- Web browser GUI
- Monitors and reports calls per day, user, and session
- Group and label devices
- Eliminates the need for costly network probes and appliances
- Includes NetVanta Server 450 and n-Command MSP software licenses
- NetVanta Server 450 supports up to 5,000 remote devices
- Rapid Return on Investment (ROI)
- Simplifies management and reduces operations costs

ADTRAN[®] n-Command[®] MSP is a powerful and easy-to-use network management system that provides real-time monitoring and management for a wide range of ADTRAN business networking solutions. Using ADTRAN n-Command MSP can improve network operations and business-class Voice over IP (VoIP) performance for service providers and enterprise organizations who are implementing ADTRAN's industry-leading NetVanta[®] and Total Access[®] 900 Series equipment.

The ADTRAN n-Command MSP system provides an easy-to-use and intuitive Graphical User Interface (GUI) with a complete suite of network administration and management capabilities that includes inventory and configuration management, firmware management, and VoIP quality monitoring and reporting for ADTRAN Total Access 900 SIP Gateways, as well as ADTRAN's line of NetVanta Switches, Routers, and IP Telephony solutions.

As increasing numbers of hosted and premise-based VoIP networks are deployed, it is becoming more important to implement a centralized network management framework. Network planners, operators, and managers require a system that empowers them to deal with the operational challenges and customer support demands associated with next-generation telecom services. Customers also expect to have the same, or higher, level of quality and reliability from these new-generation services as they had with traditional phone services.

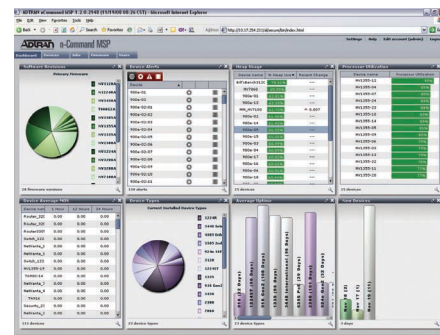
VoIP and IP telephony applications involve call quality and performance management challenges that require an easy-to-use, real-

time and sophisticated management system. The system should enable service providers and enterprise IT organizations to deliver on Service Level Agreements (SLAs), increase customer service response, reduce network downtime, and proactively monitor and report the performance of the VoIP network and users.

The ADTRAN n-Command MSP solution delivers advanced and easy-to-use capabilities for network managers to address those issues.

Dashboard – Graphical User Interface (GUI)

The Dashboard is the first screen to appear after logging into the system. It provides an intuitive and easy-to-use graphical display with point-and-click/drag-and-drop operations for real-time monitoring and management for all devices being managed by the system.



The ADTRAN n-Command MSP GUI enables the network administrator to quickly and easily organize all the managed devices. To promote flexibility and customization for each n-Command MSP user, the system is designed so each user can drag and drop modules and resize or move them around within the screen to tailor the views.


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Through the main GUI dashboard modules, n-Command MSP users have visibility and reporting on critical performance data for each managed device including the following:

- **Average Uptime** displays the average number of days the devices have been operational
- **Device Average MOS** displays the Mean Opinion Score (MOS) for each device that is running VQM for 1-, 12-, and 24-hour time periods
- **Device Types** summarizes the number of devices by type in a pie chart
- **Heap Usage** displays the percent of heap used on each device
- **New Devices** displays all the new devices discovered on the network in the last 10 days
- **Processor Utilization** displays the percent of processor being used on each device
- **Software Revisions** depicts the software revisions in a pie chart including primary, backup, or running firmware versions
- **Device Alerts** displays all alerts present throughout the network system and the icons change to a red color when alerts of any of the following occur:

 **Management Alerts** are issued when problems are detected with the device's auto-link, check-in, or running configuration.

 **Exception Alerts** are issued when an exception file is present on the device.

 **Firmware Alerts** are issued when the primary or backup firmware image is not on the system; the currently executing firmware version is not the same as the primary firmware image; or the specified primary and backup firmware images are the same file.

Voice Quality Monitoring (VQM)

As voice and data networks converge into a single communications network, the ability to implement and manage voice Quality of Service (QoS) is becoming a critical part of successful operations. QoS-enabled network devices can provide better performance and higher service levels for delay-sensitive Voice over IP (VoIP) or other mission-critical applications, as well as accommodating the lower priority traffic on the same infrastructure.

ADTRAN[®] VQM builds on QoS to provide a sophisticated level of network performance visibility. ADTRAN VQM examines VoIP data streams for each voice call, records the voice quality information, and enables network managers to identify problem areas in an easy-to-use, graphical interface.

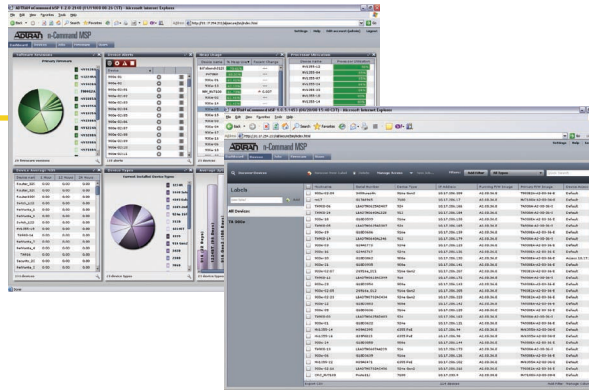
ADTRAN n-Command[®] MSP collects real-time VQM data from remote Total Access[®] 900 Series and NetVanta[®] equipment running voice. After each VoIP call is completed, the remote devices communicate with n-Command MSP via a low-bandwidth SIP message that includes the voice quality data such as MOS, delay, jitter, and dropped packets.

ADTRAN n-Command MSP then provides a graphical display of the voice quality statistics so network managers can easily and quickly select any call or extension, and expand into the performance details on each VoIP data stream.

In the event that a remote network device is experiencing low MOS performance, network managers are visually alerted. Managers can then proactively access call streams and network performance details, often before a customer may call into the help desk inquiring about low VoIP performance.

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ADTRAN n-Command MSP saves a database of voice quality data based on the device, day of week, time of day, and phone extension. The database stores up to two weeks of voice quality data and is designed to provide key metrics relating to network congestion, endpoint configuration, and other system issues, which make diagnosing and resolving customer calls faster and easier.

Remote Installation Management

ADTRAN's "Auto Link" feature enables remote devices to communicate with the central n-Command MSP server. Set the IP address of the NetVanta Server 450 in a remote device and as new devices are turned up they automatically contact the n-Command MSP server. The n-Command MSP system also provides a visual update when a new device has been added to the network.

The ADTRAN "Auto Link" feature enables network managers to configure the contact interval between remote devices and the central n-Command MSP server. Remote devices automatically check in with the central server based on that interval. ADTRAN n-Command MSP also provides a visual up/down status of each discovered device and enables managers to launch telnet, SSH, or browser access with a few simple mouse clicks.

Inventory Management

Using the ADTRAN n-Command MSP system, network managers can quickly and easily organize the entire network of managed devices for a visual display and reporting of the field assets and inventory. Devices can be easily associated and labeled into groups to make it significantly quicker and easier to identify remote devices.

While the ADTRAN "Auto Link" feature enables automated device discovery, and n-Command MSP tracks the discovered devices into the inven-

tory database and records by device type, serial number, and firmware version. Inventory data can be organized into domains such as customer name and location; easily organized into folders; and exported out to .CVS formatted file.

Firmware Management

The ADTRAN n-Command MSP offers an easy-to-use interface that provides a quick link to the latest firmware releases available from ADTRAN and enables network managers to automate firmware pushes out to an individual or a group of remote devices.

ADTRAN n-Command MSP is firewall-friendly, reaching devices behind firewalls. Remote devices use the ADTRAN "Auto Link" feature to check into the n-Command MSP server, opening up an IP session in the firewall.

Once configured, the n-Command MSP system maintains a database of firmware and knows which firmware to load for any managed device. Network managers can set up auto-running firmware jobs in the MSP system that will simplify firmware management and put network managers in full control.

n-Command MSP Firmware Manager verifies that the selected devices have sufficient memory and checks for any possible boot-code or hardware revision conflicts.

With the initial screening process complete, Firmware Manager can push a single firmware version to a single device or easily facilitate a network-wide upgrade. As part of the upgrade process, the network manager can schedule a date and time range when n-Command MSP will actually push the firmware and when the devices will reboot. This helps eliminate unnecessary network



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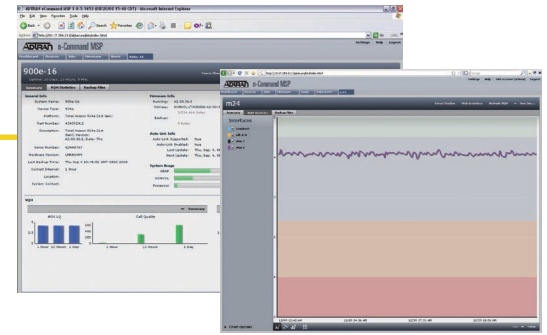
downtime, avoids use of network bandwidth during production hours, and enables managers to upgrade the network quickly and easily.

Once the firmware push is performed, n-Command MSP provides a job detail report that gives a complete summary including successful loads and specific details associated with any unsuccessful attempts so managers can resolve the issue and load firmware efficiently. This is another productivity enhancement and significant time-saving feature that frees network managers from continually monitoring the upgrade process for remote devices.

Configuration Management

In addition to firmware management, the ADTRAN[®] n-Command[®] MSP system also provides configuration management for the Total Access[®] 900 Series and NetVanta[®] devices. The ADTRAN n-Command MSP system enables network managers to push device or interface configuration files to remotely-managed devices and automate configuration backup/restoration for individual or groups of managed devices.

The n-Command MSP system enables network managers to make individual or global configuration changes to the network by pushing a Command Line Interface (CLI) Script to selected



NetVanta or Total Access 900 devices. These scripts can be created, edited and saved using the built-in script editor.

Configuration images can be backed up and stored on the n-Command MSP NetVanta Server 450. To empower network managers, the configuration backups can be set up to run in multiple scenarios: real time, a pre-scheduled time, or upon any change to the device. For the ADTRAN NetVanta 7000 Series of IP Telephony solutions, the n-Command MSP system can backup the voice mail and auto attendant files as well.

Backups can be performed manually on a single device or scheduled on a recurring basis for an entire group. n-Command MSP emails a summary of the backup operations.

NetVanta Server 450

The n-Command MSP system includes an ADTRAN NetVanta 450 special-purpose and dedicated server. NetVanta Server 450 is a compact, 1U, 19-inch rackmount device that is used for central processing, storing firmware images, and config backups. ADTRAN NetVanta Server 450 can support up to 5,000 remotely managed devices.



NetVanta Server 450

Ordering Information

Equipment	Part #
n-Command MSP with NetVanta Server 450	1700840G1




ADTRAN is an ISO 9001, ISO 14001, and a TL 9000 certified supplier.

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Pulse Supply
909 Ridgebrook
Road., Sparks, Maryland 21152, USA
TEL : +1-410-583-1701
FAX : +1-410-583-1704

E-mail: sales@pulsesupply.com
<https://www.pulsesupply.com/adtran>